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The Use of Computers in the Law†

By Robert P Bigelow*

While lawyers have been giving active consideration to the relationship between law and science for decades, this study received a measurable impetus from the publication of Lee Loevinger's now classic "Jurimetrics, The Next Step Forward." Members of the bar and academicians started giving serious consideration to the practical application of the computer in the practice of law in the mid 1950s. The discussions of these pioneers led to the First National Law and Electronics Conference at Lake Arrowhead, California, in October 1960, and the establishment by the American Bar Association of the Special Committee on Electronic Data Retrieval in 1961.

The published materials on how lawyers can use computers now number in the hundreds—perhaps thousands—of articles; thousands of man hours and millions of dollars have been invested in research and

† Editor's Note: Because of the volume of published material regarding the use of computers in the law, the editorial board of The Hastings Law Journal has deleted a portion of the citations submitted by the author of this article. To assist the unfamiliar reader, the Hastings Law Journal has adopted the following forms of citation: Jurimetrics Journal, cited as JURM. J. [usually cited as JURm. J.]; Computer Law Service, cited as COMPUTER LAW SERVICE [usually cited as C.L.S.]; Computer Law Service Reporter, cited as COMPUTER LAW SERVICE REPORTER [usually cited as C.L.S.R.]; Law Office Economics and Management, cited as LAW OFFICE ECONOMICS & MANAGEMENT [usually cited as L.O.E.M.]; Modern Uses of Logic in Law, cited as MODERN USES OF LOGIC IN LAW [usually cited as M.U.L.L.].


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3. The proceedings of this conference were published in E. Jones, Law and Electronics: The Challenge of a New Era (1962).

marketing. The investment is now beginning to show a definite impact on the practice of law. This article is but an overview; it will discuss, briefly, the impact of the computer on legislation and the courts and, in somewhat more detail, the computer as a research tool for the practicing lawyer and as a business machine in the office.5

Uses in the Legislative System

The computer has found wide application in government,6 but this article will discuss only limited aspects of legislative and judicial uses. The computer has found favor with state legislatures and, to a lesser degree, with the United States Congress.7 The Congress has had a rather stormy history of attempted automation. Hearings have been held from time to time,8 management studies have been made,9 experts have made detailed suggestions10 and computer organizations have

5. Because of the introductory nature of this article, it will not discuss the legal problems engendered by the computer or the use of the computer in legal education. For material on legal problems related to the use of computers, see ABA COMM. ON LAW & TECHNOLOGY, COMPUTERS AND THE LAW, AN INTRODUCTORY HANDBOOK 94-167 (2d ed. R. Bigelow 1969) [hereinafter cited as COMPUTERS AND THE LAW]; R. Bigelow, COMPUTER LAW SERVICE (1972). For articles on computers in legal education, see Dickerson, Legal Education in Computers and the Law 178; Freed, Education in Jurimetrics, 13 Jurim. J. 69 (1972).


offered seminars. The ups and downs of the congressional system have been well publicized in the computer trade press. Robert L. Chartrand, an information scientist with the Library of Congress, has spoken and written widely on Congress' need for automation and its problems.

In contrast, the computer has been employed quite extensively by state legislatures. Among the uses is the drafting and amendment of the bill during its legislative journey, the reporting of legislative status and the printing of the laws themselves. The computer has also been used in the recodification of municipal ordinances, first under a project of the National Institute of Municipal Law Officers and currently in private industry. Other legislative uses of the computer in-


clude the use of a model by the Internal Revenue Service to simulate
the effect of proposed tax legislation upon revenues\(^{17}\) and the preparation and maintenance of computerized mailing lists of constituents.\(^{18}\)

**Uses of Computers in the Judicial System**

Much has been written on the use of computers as an aid to the judicial process, and many dollars have gone into the research and development of computerized court systems. The difficulties in implementing such systems were well articulated by one writer who wrote:

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The few experts in court procedure and automation do point to some system successes, but they generally give poor report cards to edp and management consultants. . . . The archaic courts know nothing of computers. The quill is their tool, and they are run by judges, clerks, and prosecutors, acting as part-time administrators . . . both laws and procedures must change . . . it's still folly to automate an inefficient system, even if it's been done in the best of circles.19

Considerable literature exists on how computers may be used to improve court processes.20 The computer's potential for improving the scheduling of cases has particularly intrigued the harassed court administrator.21 The Law Enforcement Assistance Administration has funded a comparative study of the different methods of calendaring criminal proceedings in courts with basically similar problems.22

22. LEAA Grant NI 70-076 to UCLA, Eldridge Adams, Project Director.
There have been a number of attempts to apply computers in the court systems of the nation, ranging from systems analysis through statistical studies and assignment of counsel for indigent defendants to the use of the computer as a transcription tool for stenotyped notes. In the post trial phase, the computer has been used to keep wage earners' records in Chapter XIII bankruptcy cases, analysis of sentences and as a tool for determining the validity and amount of multiple claims in actions under the federal securities acts. Simulation of court systems and portions thereof have received much study with some encouraging results, and new analytical techniques promise additional advances. There has even been discussion of using the computer as a judge! On the appellate level where some courts use computerized techniques in publishing their decisions, a call has been issued for the preparation of opinions in a format easily adapta-


29. BUSINESS AUTOMATION, June 1966, at 28.

30. Bigelow, Court Use of Computer as a Tool for Determination of Validity and Amount of Multiple Claims, 12 JURIM. J. 223 (1972).


Nevertheless, as pointed out by the Special Committee on Increased Administrative Efficiency Through Technology of the Appellate Judges' Conference:

The compartmentalized approach to court problems has, unfortunately, led to only compartmentalized "solutions." . . . It will take the concerted efforts of the bar, legislative bodies, rule and policy makers, and business to blueprint and implement changes of substantive value. . . . The technological means are already at hand by which we may achieve the court of tomorrow.\textsuperscript{35}

The Computer as an Aid to the Practicing Lawyer

Computerized Legal Research

The topic most discussed when lawyers think of computers is the computer as a tool for legal research. Take, for example, the house counsel of a major life insurance company. He will find himself, with increasing frequency, asked to determine the law applicable to a problem in each of the fifty states. Much of this law is statutory, but only minimal effort is required to discover that there are almost as many methods of indexing statutes as there are jurisdictions that enact them. The frustrations encountered in such a situation were the genesis of the author's interest in the computer as a tool for a lawyer.

The Problem

The data base that the lawyer must research in order to determine the answer to his client's problem is expanding rapidly. Not only are legislatures enacting new laws, but new fields of law are coming into prominence. For example, the American Bar Association's Standing Committee on Law Lists now includes among those fields of law that lawyers may list in legal directories: aircraft title law, civil rights law, computer law, condominium law, consumer law, environmental law, equal opportunity law, franchise law, invasion of privacy law, malpractice law, public housing law, shopping center law, urban affairs law, and wage and price control law.\textsuperscript{36} All of these fields developed during the 1960s and early 1970s. Each field brings with it new statutes, new cases, new treatises and even new case reporters.\textsuperscript{37} As the nation

\begin{itemize}
\item \textsuperscript{34} Advice to author from Michael French, Executive Director, State Bar of Michigan.
\item \textsuperscript{36} ABA \textsc{Standing Committee on Law Lists} (1972).
\item \textsuperscript{37} \textit{See, e.g.,} 1, 2 \textit{Computer Law Service Reporter} (1972).
\end{itemize}
grows, so also does the court system, and new appellate courts come into existence.\textsuperscript{38} The legal researcher must ferret through ever increasing mounds of literature to find those nuggets which affect his problem.

In the past, a young lawyer's time was cheap, but that day has passed\textsuperscript{39} and research is now an expensive project. Legal research is conducted not only through books but also by conference with other members of the bar. The results of such research, however, are often haphazard. It has been held that when "proper legal research would have revealed that a case with the identical issue . . . had been pending in the Supreme Court for four months," the attorney who failed to discover the case violated disciplinary rule 6-101 (A)(2) of the Code of Professional Conduct.\textsuperscript{40} The number of law books that a practicing lawyer can afford to keep is strictly limited, though the larger the firm the larger the library it can afford. The Internal Revenue Service estimates that in 1968, the latest year for which figures are available, there were 125,497 lawyers practicing alone and only 24,728 partnerships; the average partnership had less than four partners.\textsuperscript{41} Some study has been given to the possibility of using microfilm and microfiche as storage media for law books and West Publishing Company recently has made the first series of Federal Reporter available in microfiche. A recent Canadian study, however, has concluded that these techniques have a long way to go before they are practical for the bar of that nation.\textsuperscript{42}

\textit{The Computer as a Research Tool}

The computer captures the imagination of many researchers. It offers an opportunity to store vast quantities of data in a comparatively small space, the ability to search this data very rapidly and make selections therefrom and the ability to manipulate or "massage" the data to produce a result in a format particularly useful to the individual researcher. One of the advantages frequently touted for computerized

\begin{footnotes}
\footnote{38. For example, the Massachusetts Appeals Court was established in 1972, Mass. Stat. 1972, ch. 740, § 1.}
\footnote{39. The medium starting salary for new Massachusetts lawyers in 1971 was $10,000. \textit{Massachusetts Bar Ass'n, Economic Survey Conducted by the Massachusetts Bar Association} 1970, at 36 (1972).}
\footnote{41. I.R.S., \textit{Statistics of Income} (1968), \textit{Business Income Tax Returns}, table 2.1 at 27, table 3.1 at 133 (1972). There were 80,334 partners. \textit{Id.} table 3.1 at 133.}
\end{footnotes}
legal research is the possibility of placing into the computer's storage area or memory banks the full text of whatever document is someday to be retrieved. Of the entire decision of an appellate court, including the majority, concurring and dissenting opinions, only the majority opinion is ordinarily headnoted under present indexing techniques. These headnotes and other digesting techniques reflect only what the editor believes will be of interest many years hence to a researcher. However, if the full text of all parts of the opinion can be searched with ease, the researcher may use as research tools those terms, words and concepts not contemplated by an editor many years earlier.\footnote{For example, a case might involve the collapse of a bridge through engineering deficiencies. In a dissenting opinion, a judge might analogize this case to the collapse of a building because of architectural ineptitude. If the researcher's case involved the latter set of facts, he might never locate the bridge opinion through conventional research techniques. Nevertheless, if the full text of the dissenting opinion was stored on computer, the researcher, using the variations of words embraced in the concepts of building collapse and architectural malpractice, should find the old case.}

Full text storage, however, costs money, and in each case the purveyor of a computerized legal research service must decide whether the additional searching capabilities that he offers his customers warrant the use of the full text storage. Nonetheless, with current communication capabilities, there is no need for the data to be stored in more than one place; it is possible to have the research done at that place with the assistance of individuals who are familiar with the operation of the computer system—for example, the Legal Information Thru Electronics (LITE)\footnote{For example, broad band, satellite, microwave and CATV.}—or to use an interactive system in which the researcher communicates directly with the computerized data base—for example, the Ohio Bar Automated Research (OBAR).\footnote{The major publications are by the A.B.A.'s standing Committee on Law and Technology which has published Modern Uses of Logic in Law (presently titled Modern Uses of Logic in the Law).}

To review the literature on computerized legal research would add many pages to this article. Some references, however, may assist the reader in forming his own conclusions.\footnote{The major publications are by the A.B.A.'s standing Committee on Law and Technology which has published Modern Uses of Logic in Law (presently titled Modern Uses of Logic in the Law).}

\begin{footnotes}
\item[44.] See text accompanying notes 64-65 infra.
\item[45.] See text accompanying note 55 infra.
\item[46.] For example, broad band, satellite, microwave and CATV.
\item[47.] There have been several
\end{footnotes}
formal conferences at which these questions have been discussed. Notable among them are the First and Second Arrowhead Conferences in 1950\textsuperscript{48} and 1951,\textsuperscript{49} a conference at Queen's University in Kingston, Ontario, in 1968\textsuperscript{50} and the First National Conference on Automated Legal Research conducted by the American Bar Association's Standing Committee on Law and Technology in March of 1972.\textsuperscript{51}

Some Current Computerized Research Efforts

A number of computerized legal research projects have been undertaken, both experimental and commercial. Those who are interested in studying the defunct operations will find references in the literature discussed in the preceding paragraph.\textsuperscript{52} Much of the original work in computerized legal research was done at the Health Law Center at the University of Pittsburgh under the leadership of John F. Horty. This project subsequently became independent.\textsuperscript{53} This enterprise has done research for individual lawyers and has provided a subscription and training service so that the lawyer can run his own searches. It emphasizes training the lawyer to frame his own question, “consistent with [the] philosophy of interposing nothing between the attorney and the data to be searched, and preserving his control over the search so that the results are customized to his unique problem.”\textsuperscript{54}
The Ohio Bar Association has established a nonprofit corporation known as OBAR which stands for Ohio Bar Automated Research. With the assistance of Mead Data Central, Inc., OBAR has placed in the computer memory the full text of the reported decisions of Ohio and the full text of the Ohio General Code. They can provide service with a communicating terminal in the lawyer's office. Mead also has contracts with other state bar associations to set up a similar service called LEXIS for the lawyers of those states and a contract with the National Center for Automated Information Retrieval (formerly the Lawyers' Center for Electronic Legal Research)\(^{55}\) to establish a federal law data base, particularly in the tax field.\(^{66}\) Another private firm\(^{57}\) has also approached legal research on a full text basis, working primarily with the state legislatures in the computerization of their statutes. The three organizations noted above use the full text method. A computerized index method was marketed by Law Research Service, Inc.\(^{68}\) For a number of years they have been involved in litigation with suppliers,\(^{59}\) franchisers,\(^{60}\) stockholders\(^{61}\) and copyright holders.\(^{62}\) The author does not know the current commercial status of this organization.

The federal government has also undertaken several computerized research projects. In the tax field, the chief counsel's office of the Internal Revenue Service has established a Report and Information Retrieval Activity (RIRA) to keep track of cases in litigation. The


\(^{57}\) The Data Retrieval Corporation in Milwaukee.


\(^{59}\) Law Research Serv., Inc. v. Western Union Tel. Co., 1 COMPUTER L. SVC. Rptr. 1002 (N.Y. Sup. Ct. 1968).


\(^{61}\) Globus v. Law Research Serv., Inc., 418 F.2d 1276 (2d Cir. 1969).

\(^{62}\) Computer Searching Serv. Corp. v. Ryan, 439 F.2d 6 (2d Cir. 1971).
facts, point at issue and the government's position in each case are summarized in statements which are updated and circulated monthly to each major office. A list of pending cases, classified by the point at issue, is generated through the computer and circulated with the updated microfilm abstracts of cases. By consulting a table of issues, the government lawyer is able to find index numbers which apply to cases similar to the one in which he is involved; he then checks the current issue list, puts the appropriate microfilm abstract on a reader, and gets full details on each pertinent case; he can find out what position the government is taking, find out who else is working on it for the government and, if he wishes, get a printout of the microfilm. He is then in a position to contact fellow service attorneys and plan a joint strategy. Some of the RIRA material is available publicly through the Department of Commerce's Clearing House for Federal Scientific and Technical Information.

For a number of years the Air Force has had in operation a full text statutory and opinion retrieval system known as Legal Information Thru Electronics (LITE). The latest listing of the current database includes United States Code (1970 edition), volumes 1 to 50 of the published decisions of the Comptroller General and his unpublished decisions from June 1955 through May 1972, volumes 1 to 44 of the Court of Military Appeals Reports, volumes 1 to 43 of the Boards and Courts of Military Review, those portions of volumes 134 to 183 of the Court of Claims decisions dealing with contracts, taxes and pay, the Manual for Courts-Martial and certain international legal materials published and unpublished.

63. The service, called "IRSTC—Pending Civil Tax Cases," costs $78 per year. The subscriber gets a listing of each case and the issues involved, but does not get the government's position. The uniform issue list itself is available for $3. Rogovin, Comments on Current Developments in the Chief Counsel's Office, IRS—The Machine (RIRA), 19 ABA TAXATION SECTION 36 (1965); Cohen & Uretz, RIRA: Storage and Retrieval of Tax Law Data, L. & COMPUTER TECH., Sept. 1968, at 2; Hertzog, How the Chief Counsel's Office Uses ADP in Litigation of Cases, 24 J. TAX 309 (1966); Link, RIRA—A Legal Information System in the IRS, 43 TAXES 231 (1965). See also First Nat'l Bank v. United States, 358 F.2d 625, 631 (5th Cir. 1966) (Brown, J., concurring).

64. Probably more has been written on LITE than on any other computerized legal research method. See, e.g., McCarthy, LITE (Legal Information Thru Electronics)—A Progress Report, 64 LAW LIBRARY J. 193 (1971); LITE, 14 A.F. JAG. L. REV. (1972); Memo for Council of the Public Contracts Section of the ABA, The Availability of 'LITE' Material to Non-Government Users, 3 L. & COMPUTER TECH. 207 (1970); Symposium: LITE—Legal Information Thru Electronics, 8 A.F. JAG. L. REV. 5 (1966).

The Department of Justice is constructing a legal information system called the Justice Retrieval and Inquiry System (JURIS). The initial data here, mostly in full text form, is related to search and seizure and includes appellate briefs, internal legal memoranda, sections of the United States Code and the departmental manual on search and seizure. Like OBAR, the retrieval text is visually displayed and the search terms selected by the user.\(^6\) The National Aeronautics and Space Administration also has an interactive system, working with a general space oriented information base. The full text of abstracts is stored, and certain of these items are of a legal nature, such as patents and treaties.\(^7\) Both JURIS and the NASA systems use the NASA/RECON procedures.

Other Computer Uses in Research

A larger law firm or a corporate law department can develop a very valuable library of internally prepared memoranda on topics of particular interest to the firm. Finding these, however, can sometimes be a difficult problem. Computerized techniques are available to retrieve these memoranda and can be particularly useful when the number of memoranda is large and the number of topics small.\(^8\)

Another research use of the computer closely akin to legal research is a trademark search service\(^9\) which uses computers to compare proposed trademarks against those presently in force. One company states its computerized data bank includes (a) United States reg-

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68. Amanti, KWIC Law Memoranda Retrieval, 9 LAW OFFICE ECONOMICS & MANAGEMENT 379 (1969). Commercial companies available to assist firms in computerizing this material include Aspen and Mead Data Central, noted above, and Autocomp of Bethesda, Maryland.
69. Provided by Thomson and Thomson, Inc., of Boston, Massachusetts.
istered trademarks, (b) United States pending trademarks and (c) 300,000 common law marks including 100,000 business names.\textsuperscript{70} Furthermore, much effort has been devoted to computerizing patent searches to reveal prior inventions that may prevent the issuance of a patent or invalidate a patent that has been issued. This has been attempted both privately and in the governmental sector, but the results do not appear very promising.\textsuperscript{71} The United States Patent Office has undertaken certain mechanization projects such as classification of computer programs\textsuperscript{72} and the issuance of contracts for placing patents and patent applications in machine readable form.\textsuperscript{73} Computerized simulation has been suggested as an aid in determining the proper countries in which to file patent applications.\textsuperscript{74}

The Uses of Logic

Lawyers who have studied computerized legal research have found themselves working closely with researchers in the fields of symbolic


\textsuperscript{73} Computers \& Automation, Dec. 1971, at 46.

logic and prediction of judicial decision, since all three fields draw heavily upon the concepts of Boolean algebra.\textsuperscript{75} While legal researchers have used Boolean techniques to locate pertinent precedent,\textsuperscript{76} logicians use similar techniques to analyze the law,\textsuperscript{77} and still other researchers rely on these concepts in their analysis and prediction of judicial decisions.\textsuperscript{78} In computerized legal research the hardware is used as a tool to select among a number of alternatives, a task which requires a large data base and little computing. In symbolic logic and

\textsuperscript{75} George Boole, a Nineteenth century British mathematician, formulated his postulates in \textit{The Laws of Thought}.


judicial prediction efforts, the data base is smaller and the “number crunching” capability of the computer—its ability to manipulate large quantities of numbers and equations with great speed and accuracy—comes to the fore.79

Some Specialized Applications

Estate Planning

At least two efforts have been made in the field of computerized estate planning. In a thorough job of estate planning, the interrelationship of federal estate and gift taxes and state inheritance taxes requires consideration of all the possible variables and almost endless calculations. For example, a husband may die first followed by the wife within five or ten years, or the wife may die followed by the husband. The order of death and the timing thereof, particularly when there are gifts in contemplation of death, will affect estate and inheritance taxes. Liquidity requirements must also be considered.

At least one organization is providing a commercial calculating service for estate planners.80 Under this system, the attorney obtains the required data from the client, enters it on forms supplied by the service, and forwards the forms to the organization for processing. The data is analyzed for tax, liquidity and similar problems, for both the client’s estate and that of his spouse, assuming each died before and then after the other. The service also provides planning comments and attempts to point up possible problem areas, such as the es-


Several articles have also been written on the specific uses of these techniques in drafting improved legal instruments. Allen, Symbolic Logic: A Razor-Edged Tool for Drafting and Interpreting Legal Documents, 66 Yale L.J. 833 (1957); Note, Avoiding Inadvertent Syntactic Ambiguity in Legal Draftsmanship, 20 Drake L. Rev. 137 (1970).

tate being the beneficiary of a qualified employee benefit plan. Furthermore, other tax calculation systems are apparently available.\textsuperscript{81}

The computer has also been used for an interactive interview with a client to assist in the development of his estate plan. The client actually works the computer terminal, responding to programmed questions through the use of branch techniques. From his answers a file of information on the client is developed, and a draft will is prepared.\textsuperscript{82}

\textbf{Tax Returns}

The application of the computer to tax planning has been discussed in the preceding section. Computerized tax return services have become commonplace and are used frequently by both attorneys and accountants. These services vary in the amount of work actually done on a computer. Some nationwide services make all computations, including such items as depreciation schedules, and print all of these schedules. They charge accordingly. Others require completed schedules as input and therefore charge less.

In the late 1960s, the author surveyed lawyers' and accountants' experience in using such services. Favorable comments included relief from typing, lack of proofreading required, and mathematical accuracy. Nonetheless, many users complained of delays between the mailing of worksheets and the receipt of the completed return. Since then, the services have made great efforts to improve turnaround time. Most firms which had used such a service planned to use it again. One firm decided against reuse and had a particularly interesting reason for its decision: it encountered employee resistance—the service did a good job, but the people in the firm who had been preparing tax returns for years just could not accommodate to the particular system.

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The firm had to choose between computerizing tax returns or retaining its employees. It chose to keep its employees.

Perhaps the only valid result of these admittedly unscientific surveys was to show that organizations that used a computerized service for more than fifty returns or for more than thirty-five percent of their returns (be they law firms or accountants) uniformly planned to use the service again—with the exception of the one firm which encountered employee resistance. Apparently, greater use of a computerized tax return service leads to greater familiarity which, in turn, leads to a happier and more successful experience with the service. The Internal Revenue Service currently does not permit the filing, in magnetic form, of calculated tax returns. However, it has issued procedures specifying format requirements for paper returns that are prepared with computerized techniques.

Management of Trial Evidence

One of the earliest uses proposed for the computer in the practice of law was the management and analysis of the evidence in large trials such as antitrust; it was this possible application that first intrigued Roy N. Freed, a prolific author on the subject of computers and the law. In large cases, the number of individual facts, such as documents, people and dates, reach tremendous proportions. A moderately sized case, for instance, may utilize two full-time indexers, approximately 250 file drawers of documents and material, and about 250,000 index cards—all for just one case!

Data of this type can be put in computerized form and made available upon call. One major advantage of this approach is dispens-
ing with initial indexing. For example, assume that document 762 shows that John Smith (a person of importance in the case) was at the New York Hilton on January 26, document 6327 shows that Richard Jones was at the same hotel on the same date and document 8249 shows that Robert Johnson was also there. These individual facts can be entered in the computer memory as each document is analyzed. At a later time it is possible to ask for a computer print out of the names of everyone involved in the case who was at the Hilton Hotel on January 26. These three names would be printed out with the appropriate document reference numbers, even though the need for such a correlation had not been foreseen when the information from the documents was first placed in the computer.

It is possible to get a printed record of the itinerary of John Smith for a particular week or month. All the information which has been entered from thousands of documents will be searched and each item about John Smith during that week will be printed out chronologically. The great advantage of this type of searching is that an initial index system does not have to be planned completely in advance. All that has to be planned is the framework within which the lawyer wishes to work.86

Another possible use of the computer is the transcription of stenotype notes. Once this information is captured in machine readable form, the record could easily be analyzed by computer, not only to prepare an index but also to discover inconsistencies in the testimony. When records are kept in computerized form, it is also sometimes possible to discover interesting facts without too much trouble. This was done in one particular case where an analysis of a hospital's patient records disclosed that a physician who was the plaintiff's expert in a medical malpractice case had himself handled the condition only once, and then in a manner similar to that used by the defendant.87


This type of work is now being done by at least two commercial organizations, both of which are run by lawyers. See Berul, Computerized Litigation Research, 3 Computer L. Serv. Rptr. § 5-4.3, art. 1 (1972); Shuman & Bagley, Electronic Data Processing as an Aid to Trial Lawyers, 3 Computer L. Serv. Rptr. § 5-4.3, art. 2 (1972).

Real Property Applications

Considerable attention has been given to the improvement of land records, using not only aerial photographic techniques but also a computer. Much work has been done on this under the auspices of the American Bar Association's Section on Real Property, Probate and Trust Law. At least three conferences have been held on the subject in North America, the first in 1966 in Cincinnati, the second in Canada in 1968 and the third in Atlanta in 1972. Much interest in this field has been evinced by the title insurance companies, and computerized techniques have much potential in improving the accuracy of land transfers.

The Computer as an Aid in the Law Office

The computer is now beginning to have a discernible impact on the management of the law office. In 1970 and 1971, the American Bar Association's Standing Committee on Law and Technology completed the first survey of law firm computer use. Compiled by Paul S. Hoffman, Chairman of the Committee's Advisory Committee on Education, the survey covered fifty-six law firms, ranging in size from the sole practitioner to three firms in excess of 100 lawyers. Most of the respondents used outside commercial computer services, though


91. The proceedings of the conference are yet to be published.


five firms of over forty lawyers had their own computer in the office. The major applications were in the time record, client accounting and general ledger areas, and a number of firms used an outside computer service in their payrolls. There also was scattered computer use in areas already covered in this article such as legal research, internal memoranda searching, management of complex trial material, trademark searching, preparation of client income tax returns, and estate planning.

The implementation of a computerized system requires a thorough study of the office function, and the experience of one Dallas lawyer indicates that better results may be achieved from a thorough systems study of the law office's functions and the implementation of a revised manual system, rather than the automation of inefficient current management procedures. Law office automation has been studied by a number of bar association committees, notably the American Bar Association's Standing Committees on Economics and on Law and Technology, as well as its General Practice Section. In addition to being discussed at numerous state, local and national bar meetings, law office automation has been considered at the first, second, and third National Conferences on Economics and Law Practice of the American Bar Association, and at several Practising Law Institute courses.

Time and Accounting Systems

The amount of time that the lawyer devotes to the client's problem is one of the items which should be considered in determining a reasonable fee, and a number of studies have shown that lawyers who keep time records generally have a higher income than lawyers who do

The accounting records required by law firms to reflect disbursements on behalf of clients, accounts receivable and the expenses of practice are quite similar to other professions such as accounting, architecture and engineering. Organizations that had established accounting systems for these professions were anxious to persuade lawyers to use a similar, if not the same system. Therefore, a large number of computerized office systems include both time records and general accounting.100

Some question was raised at one time about the ethics of a lawyer's using an outside organization to maintain client time and disbursement records. The matter has been considered several times, and it has been generally concluded that there is no violation of professional ethics in so doing, though discretion seems appropriate, when the nature of the services is spelled out in the time records and the client's name is also disclosed in the records available outside the lawyer's office.101 Additionally, lawyers and law firms frequently serve as ex-

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99. E.g., THE MASSACHUSETTS ECONOMIC SURVEY 11 (1971) (The median annual income of lawyers who always kept time records was $25,000; that of those who never did, $20,000. Of Massachusetts lawyers, 11.6 percent reported that their time records were in some way computerized.)


executor or trustee. Several large firms use either an in-house computer or a service bureau to do accounting for these trusts. The trustee obtains periodic status reports for each trust, year-end figures for federal and state taxes and the necessary information for filing trustee's accounts in court. Computerized estate management should increase accuracy and save money, personnel, space and training time. 102

Document Preparation

The computer is becoming popular as a tool for automatic typing of documents. Among the first law firms to install this application, one has used an IBM System 360, Model 20, which is not a sophisticated machine. 103 This was a "second generation" computer as far as this firm is concerned; the first generation computer (an IBM 870) enabled the firm to expand from twenty-two lawyers and twenty-two secretaries to thirty-two lawyers and only twenty-five secretaries; after deducting the cost associated with the first computer and its personnel, the firm calculated it saved the cost of two or three full time legal secretaries. 104

Large documents, such as prospecti or bond indentures, have considerable amounts of "boiler-plate" material, that is, wording repeated again and again in successive forms. One service 105 specializes in producing such documents in printed form, using computerized techniques to help the lawyer cut down on the amount of effort required in preparing the text and proofreading it. The system is particularly helpful when only a few items, such as dates and amounts, are changed from document to document. Prime candidates for this application include various Securities and Exchange Commission reports, serial mortgages, security agreements and incorporation documents. 106

Another corporation 107 is the offspring of a commercial law firm

102. The author is not aware of any published material on this law firm use. Corporate trustees have major computer installations and the following recent references may be helpful. Burd, How to Avoid Common Difficulties in Computerizing the Trust Department, 50 TRUST BULL. 6 (1970); Cleary, Trust Operations and Computers, 109 TRUSTS & EST. 849 (1970); Whitman, Computerized Accounts for Estates and Trusts, 109 TRUSTS & EST. 832 (1970).

103. Smith and Schnacke, of Dayton, Ohio, has used an IBM System 360, Model 20.


107. LCS Corp., of Springfield, Massachusetts.
that became buried in paperwork trying to collect debts, prepare plead-
ings and send reports to its clients. From a battery of IBM MT/STs, the system has evolved to an in-house computer at lower cost and more efficiency. The offspring now sells the word processing sys-
tems designed for the legal profession and has also incorporated ac-
counting records into the same system.\textsuperscript{108}

The author used a word processing system designed by Bowne Time Sharing, Inc.\textsuperscript{109} An IBM magnetic card typewriter with com-
munications ability was connected through a Bell Dataphone to a multiplexer in Bowne's local office. The multiplexer was connected through leased communication lines to an IBM 360/50 computer in New York City. The computer terminal could be used for ordinary word processing when it was economic to do so. The computer pro-
cedure could be used for wills, trusts, leases, contracts and reports; it was particularly helpful in the preparation of appellate briefs because of a photocomposition program that permits the expeditious and economic preparation of camera ready copy for the printer.\textsuperscript{110} The system also could store and forward messages from user to another; this was partic-
ularly helpful when intercity speed was necessary.

\textbf{Conclusion}

This has been a selective and almost cursory survey of the current uses of the computer as it affects the practice of law. Automation has had a slight impact on the legislatures and the courts, and on the law-
yering process. Already, it has had a measurable impact on law office operations.

The effect of this new tool on the practice of law promises to grow rapidly in the next decade. Undoubtedly courts and legisla-
tures will make increased use of the computer's ability to computerize documents when first written, to revise them practically instantane-
ously, to store the result in computerized data banks for subsequent re-
trieval and to photocompose the stored data for publication.\textsuperscript{111} The assumption of these computer input costs by the government should

\textsuperscript{108} Hendel, \textit{A Mini-Computer System for the Law Office}, PRAC. LAW., May 1972, at 39. A combined system is also currently being sold by Comptek Research of Buffalo, New York.

\textsuperscript{109} Bowne Time Sharing, Inc., of New York City, has designed such a system.


limit the cost of compiling computerized legal data bases to those ex-
penditures necessary to capture already published material of prece-
dental value or materials such as law reviews and treatises still pub-
lished with noncomputerized techniques. Furthermore, communica-
tions, both hardware and the datapaths (telephone-microwave-
CATV), cost less per unit as the technology improves.

These factors make it likely that the cost of computerized legal
research will become less of a factor during the next decade. As the
decrees and statutes continue to increase and the law becomes more
complex, lawyers will have to do more actual library research, and
they will have less time in which to do it. If it becomes malpractice
not to find the latest case,\textsuperscript{112} computerized techniques may offer the
only way out, especially for the lawyer who practices alone or in a
small firm.

The computer's impact on the legal profession, like its impact on
business, will be determined primarily by its ability to make the prac-
tice of law more attractive economically. Already the computer is af-
fearing the record keeping and document preparation techniques of
numerous law offices. It is beginning to affect certain legal research
functions, and as costs decrease we can, with some confidence, forecast
much increased use of the computer in the practice of law.

\textsuperscript{112} See Buchanan, \textit{A Lawyer of Indianapolis—A Tragedy in Two Acts}, \textit{Res
GESTAE}, July 1968, at 12.